

## **PERFORATOR BASED FLAPS VERSUS FULL THICKNESS SKIN GRAFTS FOR BROAD SCAR CONTRACTURE RELEASE: A MULTICENTRE RANDOMIZED CONTROLLED TRIAL (P081)**

\*Stekelenburg C.<sup>1,2,3</sup>, Jaspers M.<sup>1,2,3</sup>, Gardien K.<sup>1,2</sup>, Jongen S.<sup>4</sup>, Hiddingh J.<sup>4</sup>, van Zuijlen P.<sup>1,2,3</sup>

<sup>1</sup> Red Cross Hospital, Burn Centre and Department of Plastic and Reconstructive Surgery, Beverwijk, Netherlands

<sup>2</sup> VU University, MOVE research institute, Amsterdam, Netherlands

<sup>3</sup> Association of Dutch Burn Centres, Beverwijk, Netherlands

<sup>4</sup> Martini Hospital, Burn Centre and Department of Plastic and Reconstructive Surgery, Groningen, Netherlands

**Introduction:** Until now, the mainstay of treatment of scar contractures is release and autografting, preferably with a full thickness graft. Local flaps however, offer the best quality of tissue (normal skin and subcutaneous fat) and since the discovery of perforators many types of new skin flaps can be harvested as long as it incorporates a perforator bundle of an artery and vein. The implications of the use of perforator based flaps for the treatment of scar contractures by means of a randomized controlled trial has to be determined yet.

**Methods:** A multicenter randomized controlled trial was performed that compared two treatment techniques: perforator based flaps versus full thickness grafts for the treatment of scar contractures. The primary outcome parameters were surface area and width of the perforator flap or graft after 3 months. Additionally complications were registered. Secondary outcome parameters were elasticity, color and subjective scar assessment score of the flap or graft.

**Results:** 16 patients were randomized for a perforator flap, 14 for treatment with a full thickness skin graft. In the perforator group an increase in surface area of the flap of 123% was registered whereas in the full thickness skin graft group a decrease in surface area of 87% was registered. The width of perforator flaps increased to 124%, the width of the full thickness grafts decreased to 94%. The differences were statistically significant. Additionally, the secondary outcome parameters (with the POSAS score by the observer and the color being statistically significant) showed that perforator flaps resemble normal skin to greater extent than full thickness skin grafts.

**Conclusions:** The findings of this RCT support the use of perforator flaps for the reconstruction of burn scar contractures. In all cases where both perforator flaps and full thickness skin grafts are interchangeable we advocate the use of perforator based flaps over full thickness skin grafts.